

FORM NO. 51-44A
FEB 1952

INTELOFAX 10

CENTRAL INTELLIGENCE AGENCY

CLASSIFICATION SECRET

25X1

25X1

INFORMATION REPORT

REPORT NO. [REDACTED]

CD NO. [REDACTED]

COUNTRY USSR (Moscow Oblast)

DATE DISTR. 3 Sept. 1952

SUBJECT Research at Institute 160, Fryazino

NO. OF PAGES 3

DATE OF INFO. [REDACTED]

NO. OF ENCLS.
(LISTED BELOW)

PLACE ACQUIRED [REDACTED]

25X1

SUPPLEMENT TO
REPORT NO.

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL DEFENSE OF THE UNITED STATES, WITHIN THE MEANING OF TITLE 18, SECTIONS 793 AND 794, OF THE U.S. CODE, AS AMENDED. ITS TRANSMISSION OR REVELATION OF ITS CONTENTS TO OR RECEIPT BY AN UNAUTHORIZED PERSON IS PROHIBITED BY LAW. THE REPRODUCTION OF THIS FORM IS PROHIBITED.

25X1

THIS IS UNEVALUATED INFORMATION

25X1

1.

25X1

25X1

For the barium-strontium mixture the ratio of barium to strontium was one to one, or 50% barium and 50% strontium (molecule percentages). The molecule percentages for the barium-strontium-calcium mixture were 50% barium, 45% strontium, and 5% calcium.

2.

25X1

25X1

25X1

25X1

25X1

25X1

25X1

The carbonate crystal's shape was generally spherical for production, [REDACTED] needle shaped crystals on occasion, but for test purposes only. In the spraying processes [REDACTED] the spherical shape. In the cataphoretic process, according to German standards, [REDACTED] have used the needle shape; but at Institute 160 [REDACTED] the spherical. The Soviets were never able to achieve the needle shape, which [REDACTED] is the more desirable. The greatest portion of these crystals varied in diameter between 2 and 6 microns. The RCA specs required 3 to 5 microns and specified grinding, but the Soviets did not grind them because they were already close to that size to start with.

CLASSIFICATION SECRET

STATE	<input checked="" type="checkbox"/>	NAVY	<input checked="" type="checkbox"/>	NSRB		DISTRIBUTION														
ARMY	<input checked="" type="checkbox"/>	AIR	<input checked="" type="checkbox"/>	FBI		ATIC ex	<input checked="" type="checkbox"/>													

SECRET

25X1

-2-

3.

25X1

25X1

25X1

The carbonate precipitating chemical medium for the barium-strontium mixture was Na_2CO_3 (soda). [redacted] quantities which resulted in 1 to 2 kg of chemical; the precipitation for this quantity took 1 to 20 minutes at a temperature of 90° centigrade. In the barium-strontium-calcium mixture the chemical used was $(\text{NH}_4)_2\text{CO}_3$ (ammonia). The time of precipitation was approximately 1 to 20 minutes at a temperature of 30° centigrade.

4.

25X1

5.

25X1

25X1

Wire cathodes were cataphoretically coated. If the cathode was of the sleeve type, it was sprayed.

6.

25X1

7.

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

[redacted] the Soviets are aware of the effect of impurities in the nickel cathode base. For impulse emissions [redacted] everyone knows that magnesium nickel is better than silicon nickel. [redacted]

[redacted] The Soviets boasted of having achieved a nickel purity of 99.99%. A plaque was hung testifying to this during the October celebration [redacted] believe in 1950. This figure sounds too good and [redacted] don't believe it. [redacted] worked (in the USSR) with nickel of 99.7% or 99.8% purity. [redacted] a company called Heraeus, in Hanau, Germany, [redacted] can make 99.99% pure nickel, but the cost is high and the delivery time is excessive. The Soviets used silicon nickel whereas the Germans use magnesium nickel, so that comparison is difficult. In general, however, the Soviet nickel quality fluctuated more than the German material. [redacted] spectral analysis of this material was employed.

8.

25X1

SECRET

SECRET

-3-

25X1 [] As far as wolfram-molybdenum alloy was concerned []
 25X1 [] about 40% of the filament shapes were made of this material,
 perhaps because it was easier to work with. Spirals are not made
 with wolfram-molybdenum alloy because it is difficult to "eat
 out" the core with acid. Traces of the acid will affect the
 vacuum tube.

9.

25X1

25X1

25X1

25X1

25X1 [] Soviet mica [] is of very good
 25X1 [] quality compared to the German variety. [] don't believe that
 25X1 [] lack of mica creates any bottlenecks in the USSR, as it appeared
 25X1 [] to be readily available in any quantity. At Institute 160 []
 25X1 [] sheets 18 to 20 cm square, [] never [] sheets []
 25X1 [] this size in Germany even during the war. Mica was always scarce
 25X1 [] in Germany. The Soviet mica didn't have any better insulation
 25X1 [] properties than did the German mica. Soviet mica was sprayed
 25X1 [] with magnesium oxide, as was the practice in Germany, in order
 to improve its insulation qualities.

10.

25X1

25X1

25X1

25X1

25X1

25X1 [] At first training classes were held in Institute No 160; then,
 25X1 [] in the summer of 1951, this training establishment was moved to
 Semashko, near Fryazino. [] the move was completed during
 May 1952. The school, while in Fryazino, had evening classes for
 young workers of Institute 160--I think, to further their educa-
 tion in electronics. To enter this course one had to have 10
 years' previous schooling. The school in Semashko did not seem
 to have this requirement, however. After [] Germans were "milked"
 of [] talents and experience, [] were assigned ordinary jobs
 during a final "cooling off" period prior to being returned. []
 [] this was to conceal [] the real work of the Institute.

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

25X1

SECRET